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The loss of human capital after the Spanish civil war

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Abstract

Forced migrations are shocks that affect to the lives of millions of individuals. Among the consequences of this non-voluntary migration, the loss of a significant stock of human capital is of particular importance. The Republican exile in post-civil war Spain is an excellent case study, since the traditional representation is that Spain lost a highly qualified population. However, not that much has been said about the quantification of this loss or the measurement of the quality of the human capital that left Spain after the end of the civil war. This paper tries to fill this gap offering an estimation of the quality of the human capital that left Spain comparing it with the years that preceded and followed it and with economic migrants who were moving at the same time. Mexico was the major destination for Spanish refugees since the beginning of the Civil War and produced a unique primary source for analysing economic immigrants and refugees. We use multivariable regression models to estimate the existence of a skill premium in Republican refugees, analysing proxies of human capital like occupations, heights, and foreign languages spoken. Our results suggest that Spanish Republican refugees presented a skill premium compared to economic migrants. This result is particularly relevant because traditional economic migrants from Spain to Mexico were already considered a "privileged migration" given their high levels of human capital. The quality of the source allows us to extend the analysis to female human capital, an important contribution given the traditional invisibility of women in recorded economic history.

JEL Codes: N36, J24, J61

Forced migrations, exiles, and genocides are shocks that affect to the lives of millions of individuals. The literature has stressed the obvious differences between forced and voluntary migration. Refugees do not choose their country of destination or the time they move; economic "pull factors" in destination countries are weaker and "push factors" from origin countries are stronger for refugees (Hatton 2020). Refugees are assumed to be not economically selected to the same degree as economic migrants and contemporary refugees typically arrive in a host country with less locally applicable human capital, including language and job skills, than economic migrants (Brell, Dustmann & Preston 2020). This paper focuses on the Spanish exile in Mexico that followed the Civil war. The Republican exile differs quite substantially from the general picture on refugees. Many of them landed in Mexico since other options were blocked, risky, or undesirable (remaining in France or re-emigrating to another country) and, particularly, because Mexico opened the door for Spanish Republicans. They spoke the same language and presumably had professional skills above the average of the Mexican population. In contrast to contemporary refugees, Mexican citizenship was granted immediately, and they could look for employment without any legal or administrative barriers. [1]

Although the moral effects of exile are dramatic and direct, there are also secondary consequences that are usually undervalued; the loss of a significant stock of human capital in the country of origin is one of them. Recent studies have focused their interest on this field and in the importance of the drain that forced migrations and genocides suppose (Acemoglu, Hassan & Robinson 2011; Toews & Vézina 2020). The republican exile in post-Civil War Spain is an excellent case of study. The amount of literature related to the issue is abundant in quantity and also in quality, ranging from the recreation of the personal experiences of the exiles to the quantification of their numbers (Ruiz Franco & Riesco Roche, 1999). The traditional view of this extensive literature argues that the importance of the Spanish exile does not rely exclusively on the number of people who left the country, but also on their quality as together with farmers, merchants, and blue-collar workers moved university professors, teachers, engineers, and liberal professionals. The literature assumes that the Spanish exile supposed a brain drain for the country. Research on contemporary refugees paints a consistent picture of refugees as disadvantaged both socially and economically relative to other immigrants at arrival (Brell, Dustmann & Preston (2020). In contrast, the literature presents the Spanish exile as highly qualified flow compared to traditional economic immigrants and not disadvantaged at all compared to the Mexican population.

[1] In the short run, many refused to become Mexican citizens anticipating a desire to return to Spain as soon as Franco fell and retained their passports. The only condition the Mexican government established for Spanish exiles was not to get involved in Mexican politics.

However, not that much has been said about the quantification of this loss or the measurement of the quality of the human capital that left Spain after the end of the civil war. This paper tries to fill this gap offering an estimation of the quality of the human capital that left Spain during the exile, and also puts it into a broader context comparing it with the years that preceded and followed it. It uses data from México, one of the largest recipients of Spanish exiles. The initial results show that depending on the estimator used, the qualification of the exiled to Mexico could almost double the qualification of the economic migrants who coincided in time with them. The paper also includes an estimation of the female human capital that was lost in the exile, an important contribution given the traditional invisibility of women in recorded economic history. Our estimation shows that female human capital was a significant proportion of the amount of human capital lost in the republican exile in Mexico.

The paper is structured as follows. The first section will present a general overview of the Spanish republican exile. Section two will describe the sources used in this paper. The following section will present the main descriptive results followed by an econometric analysis of the data based on our methodology. Section five discusses and interprets the main results, and the final section concludes.

The Spanish exile

From January to March 1939, around 400,000 Spanish refugees crossed the French border before the end of the Civil War (Rubio 1974, tab 48). Most of them crossed the Pyrenees from the neighboring regions of Catalonia, Aragon, Navarre and the Basque Country or from other areas more distant like Valencia. Many returned in the following months and by December 1939 only 140,000 Spaniards remained in France. Facing the problem of Spanish refugees, the French government began negotiations with Latin American countries to take in Spanish refugees, but received only three positive responses: Mexico, Uruguay, and Chile.[2] The Mexican government of President Cárdenas agreed to open the borders to Spanish Republican exiles with no limits, which meant that Mexico (with a modest tradition of being a country of destination for Spanish emigrants) came to account for 15 percent of all exiles becoming the second largest recipient after France alone (Pla Brugat, 2001).

An estimate of the total volume of permanent emigration produced by the Spanish civil war gives a figure of 190,000 people, mostly in France (Rubio 1974, p. 228). When compared with traditional

[2] Initially, the French government forced repatriations until May 1939 when forced repatriations to Spain were banned because of protests in France against repression by the Franco side.

Spanish emigration the magnitude is modest.[3] If we compare the Spanish exile with other political emigrations, for example after the Russian Revolution and Civil War of 1917-1920 or with the volume of European refugees after the Second World War, the order of magnitude is also not comparable.

However, Spanish historiography has given extraordinary importance to the emigration of Republican refugees to Mexico. There are several reasons for this. First, unlike recent asylum seekers (1997-2014) in the European Union, where the requested destination is influenced by the stock of immigrants of the same national origin in the destination countries (Hatton 2016), the immediate determinant of the choice of destination for Spanish exiles was not the stock of Spanish immigrants living in Mexico (as could have been the case in Argentina, Uruguay or Cuba) but the political decision of President Cárdenas. Second, unlike the traditional Spanish migratory flows to America (including Mexico), the literature on the Spanish exile presents a group with high professional skills (Abellán 1976-1978) and stresses the fact that Spain lost human capital. Pla Brugat (2001) supports this view and argues that the forced migration of Republican exiles in Mexico certainly included a relevant number of great intellectual figures, although arguing that it was a much more heterogeneous movement than initially considered.

To what extent Mexico is a good proxy of the republican exile is an important question that we should address. We thought on the inclusion of the French exile in our calculations of human capital lost; however, there are several obstacles that make this inclusion. First, although hundreds of thousands of Spaniards crossed the frontier towards France, many of them returned to Spain. One of the reasons was that the exiles experienced appalling living conditions in France. From the recording of the personal experiences of many exiles, different authors have pointed out that the welcome that the republicans received in France was far from hospitable. As it happens now, the Spanish refugees were kept in refugee camps that did not comply with the most basic living standards. The poor sanitary conditions and the hard winter of 1939 produced numerous casualties, while the French authorities did not allow Spanish doctors and nurses to give any medical care to their countrymen during the first days (Mancebo, 2008:96). The prospects of the republican exiles in France were equally pessimistic with options that ranged from the direct repatriation to the incorporation to the French foreign legion (Pérez Guerrero, 2008:77). The reports of the exiles explain how Franco's regime sent emissaries to the refugee camps to encourage the return reinforcing the repatriation to Spain (Rafaneau-Boj, 1995:149).

[3] Between 1910-1913 the total volume of Spanish emigration reached nearly 900,000 people; In the 1920s, the peak was 650,000 during 1920-1923 (Sánchez-Alonso 1995, chap. 3)

Pla Brugat estimates that around half of the republicans living in France in June 1939 belonged to the secondary sector, one third to the primary and around 18 per cent to services (Pla Brugat, 2000:169). However, this estimation that could work as a crude proxy of human capital changed during the following months when many of them returned to Spain. Although we can speculate about who went back, the problems to identify the profile of those who did it makes difficult the direct incorporation of the French exiles to the estimation of human capital.

Was the profile of the Mexican republican exile representative of the Spanish population? Data on the passengers in the first three ships arrived in Mexico during the summer of 1939 show that nearly 50 percent of them had occupations in the tertiary sector: 15 percent had liberal professions and 13 percent were teachers, university professors and intellectuals. (Pla Brugat 1994: tab. 9.2). The Spanish population census of 1930 gives a total of 27 percent in the tertiary sector. Although these data from the early arrivals to Mexico may not be representative of the total flow, the traditional iconography presents a Mexican exile that was not a good mirror of Spanish society (Vilar, 2006:360). According to this interpretation, the Mexican exile was mainly composed by intellectuals and therefore only representative of the most cultivated social spectrum. There is no discussion about the importance of some of the figures that left the country like scientists, artists, or politicians, and we count on numerous studies analyzing this movement that crossed the Atlantic after the end of the civil war (Angosta, 2009).[4] In the scientific and academic world, the effect went beyond the individuals involved as it also destroyed the research groups that they led (Barona, 1998:109). Political repression in Spanish universities and scientific centers during the 1940s did the rest to destroy scientific and academic networks in Spain (Giral, 1994).

However, the emphasis on intellectuals and scientists is not consistent with what the data show. The analysis of the aggregate data points out in a different direction showing that the Mexican exile was not dominated by intellectuals (Pla Brugat, 2000:164). If noneconomic factors have a large importance for refugees, refugee populations are likely to include both low and high-skilled individuals whose skills are more suited to their country of origin than to their destination, and also demographic types who might be unlikely to migrate for economic reasons (Brell, Dustmann & Preston 2020). Our data support this view and show that together with the top social elite there was also a substantial movement of lower classes. Our aim is going a step beyond the traditional

[4] As an example, Blas Cabrera Felipe who was considered one of the leading physicists of his time, sharing experiences with figures like Einstein, Bohr or Curie and being invited to the Solvay Conference, a meeting of the best scientists of the world.

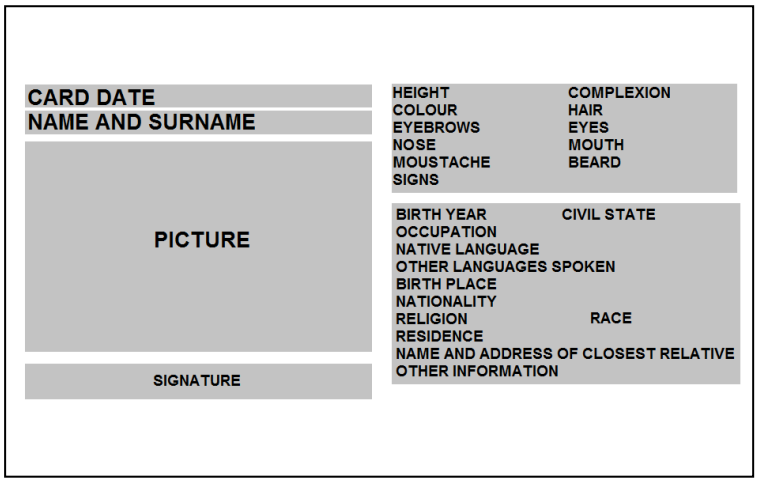
representation and quantify this human capital loss and the quality of the human capital that left Spain after the end of the Civil War.

Sources and data

The main source used in the paper is the National Registry of Foreigners in Mexico that the Mexican government created in 1926. The registry was established by the General Direction of Migratory Services and contained information about the Spanish migrants who lived in the country. The registry also included any foreigner from other nationalities that had entered Mexico before the 1st of May 1926. All the migrants that lived in the country at the time were registered, and a document with their personal information issued as proof of their legal status. The registry includes information from several generations of immigrants that entered the Mexico since the mid-nineteenth century, and from 1929 all the new immigrants that arrived were registered with a similar document.

The registry includes information provided by the expatriates that was highly detailed. The standard document among others included two pictures, one front and one side, date of entry, information about the form of the eyebrows, eyes, mouth, or facial hair, height, date and place of birth, occupation, religion, or the number of languages spoken. Figure 1 shows a typical design of the card and the sort of data that it included.[5]

Figure 1: Immigration Card Design



The cards, kept physically by the General Archive of the Nation in Mexico, were digitalized by the Spanish Ministry of Culture through its online archives system that we use to consult and transcribe

[5] An example of a real card is presented in the appendix (Figure A1).

the information. We used the content of all the cards digitalized, including around 26,000 of them and extracted name and surname of the immigrant, the year when the individual entered Mexico, year of birth, the province of birth in Spain, gender, age, occupation, if the immigrant was or not a political refugee, last reported residence, the sort of transport used to get into the country and its name (in the case of ships), the stature, the number of foreign languages spoken and his/her religion. To compare exiles and traditional migrants we included in our sample only those records with individuals older than 18 years.

From this information we created a profile of the immigrant in Mexico before 1936 and also a profile of the republican exile. In addition to the characterization of the different sorts of migrations, one of the main aims of this paper is the estimation of human capital of the people who arrived in Mexico since the mid-1920s to the late 1940s. The contrast of the exile with the traditional economic migration will offer us a comparative perspective to put the human capital of the exiles into a broader context so we could isolate better the effect of belonging to the first group, an exercise that has not been carried out in the literature to our knowledge.

Therefore, the first step was the definition of human capital and therefore the estimators that we can use to measure it. In our case the immigration records kept by the Mexican authorities do not offer information about formal education levels, but about the occupation of the immigrant, a proxy that can be used to measure the level of human capital. Each individual had to provide detailed information about his working experience when they entered the country. In the case of those immigrants that already lived in Mexico about their current occupation.

We used the HISCAM scale proposed by Lambert et al. (2013) to operationalize the information from the occupations into a quantitative index, a social stratification index that has been widely used in the historical literature were higher values represent a more advantaged occupational position. This proxy for human capital is not free of methodological problems; to what extent the job declared was or not related with the real level of human capital of the individual is something we cannot control. Another problem of the jobs declared is derived from the diligence of the Mexican agents that interviewed the immigrants. In some cases, the civil servants grouped the occupations into main categories considering that the member of a music band or a composer were both musicians. Similar problems can be found in the case of the educational sector where for instance many of the school teachers were registered as university lecturers (Llorens, 1976). Another problem derived from the use of occupations is the lack of heterogeneity in female migrants, where most of the women were recorded as housewives not being possible to distinguish from this information the differences in the level of human capital between females.

We also observe a certain time inconsistency in the level of detail offered by each immigrant in relation to their occupations. After the mid-1930s the description of the jobs was incredibly accurate, providing not just a general description like engineer, but even a more detailed picture like agricultural engineer or industrial engineer. The sources are not equally generous in the description of the jobs before the 1930s. In many of the cases the immigrants declared themselves as *employees* or *traders* and *merchants*. As mentioned above, the immigration records that we analyze were introduced in 1926, and it is precisely the information about the immigrants who entered Mexico previously and were already living in the country the one that appears to have a lower level of detail. In contrast, those immigrants whose records were created as they entered Mexico starting in the 1930s are the most detailed. This limitation means that the recreation of series of human capital for those immigrants who arrived before 1930 is less reliable.

For that reason, we searched for alternative estimators of human capital that could be studied and compared through the whole period under study. One of the possibilities using the information included in the cards is the number of languages different to Spanish that the immigrant could speak.[6] The advantage of using this proxy is that it allows us to distinguish the differences between female migrants much better than using occupations. For instance, we cannot distinguish the levels of human capital between women recorded as housewives using their occupation, but we can do it using the number of foreign languages that they speak. A housewife raised in a wealthy family probably received a better education that one born in a poor one, a situation that could be identified by the number of foreign languages that each one of them speaks. The use of foreign languages also solves the potential problem explained above concerning the use of general occupations like employees or merchants before 1930 in a similar way that it does with the case of housewives.

We made adjustments to exclude from this proxy those languages that cannot be considered foreign, like Catalan in the case of migrants born in Catalonia or Basque for those born in the Basque Country and that should be considered mother languages. We understand that the use of this proxy probably captures a very high level of formal education. For instance, a highly qualified worker like a master carpenter who does not speak any foreign language would be classified as low skilled. However, we assume that learning foreign languages requires natural skills that could also identify a level of human capital beyond formal education or occupation. In fact, when we compare the average number of

[6] Speaking a language different to Spanish has no relevance for their adjustment in Mexico but show the quality of education received in Spain.

languages spoken by the immigrants every year, they tend to present a high correlation with the estimators derived from the occupations like HISCAM[7].

From the occupation of each individual, we also transcribed his social class using HISCLASS scheme based on dimensions like manual vs non-manual work, skills, supervisional character of the occupation and its economic sector (van Leeuwen and Maas, 2011). We used its 5 class version that divides occupations in the following social classes:

1 Elite (higher managers and higher professionals)
2 Lower middle class (lower managers, professionals, clerical and sales personnel and foremen)
3 Self-employed farmers and fishermen
4 Skilled workers (medium skilled and lower skilled)
5 Unskilled workers and farm workers

Finally, we also use the stature of the migrant as a proxy of human capital, as the literature has suggested that there is a high correlation between both dimensions. Camara et al. (2019) showed that between 1855 and 1960, a similar period to the one covered in this paper, Spanish conscripts who were illiterate were also systematically shorter than those who could write and read, and these even shorter than those who were recorded as students. Similarly, Huang (2015) shows that the stature of Dutch conscripts in the mid twentieth century also increased as their education level did. Silventoinen and Lahelma (2001) revealed the same correlation between education and heights in Finland and Sweden between 1920 and 1969, as did Heineck (2006) in the case of Germany between 1952 and 1981. The correlation between human capital and heights is not restricted to historical studies, as Meyer and Selmer (1999) showed in their study for the late twentieth century where they proved that both men and women who were more educated were also taller. The correlation found in the literature is not surprising, as statures as adults depend on the nutrients and the physical weariness that the body received during the growing period, and both variables are highly correlated with the socioeconomic status of the families where individuals were raised. In a society where the transmission of socioeconomic status between parents and children was very high (Santiago-Caballero, 2020), heights seem to be a reasonable proxy for the socioeconomic status and indirectly for the human capital of the migrants.

As in the case of foreign languages, one of the strengths of using heights is that its use avoids some of the problems that appear with the use of general occupations like housewives, employees, or

[7] The correlation between both variables is 0.66 for the whole period and 0.76 between 1900 and 1950.

merchants. However, we should take into account that there were also important differences in heights between regions in Spain that could have a natural and not a social origin. Quiroga (2001) showed important regional differences in the height of Spanish conscripts that 1893 and 1954, with the Canary Islands systematically ranking at the top and the regions of the interior ranking at the bottom. To this regional disparity that could in part have a genetic base, we should also add that the trends in the average height of their population that the different regions in Spain followed over time was not homogeneous, as Quiroga herself or Martinez Carrión (2001) explained. Therefore, the inclusion of regional controls is necessary when comparing the differences in heights between individuals from different provinces.

To make comparable the heights of individuals who were measured at very different ages, the heights recorded in the cards had to be adjusted because individuals tend to lose stature after the age of 50, as consequence of the compression of the discs between the vertebrae. Fernihough and McGovern (2015) estimated an annual reduction between 0.08 and 0.1 per cent for males and 0.12 and 0.14 per cent for females. We used the average of these ranges to adjust heights for migrants older than 50.

Our first approach to visualize the potential differences between exiles and traditional migrants was based on a descriptive analysis of the data comparing the profile of the exiles with that of the traditional migrants. We later analyzed the evolution of our three human capital proxies over time to check not only if there was an increase in their values with the arrival of the exile, but also if the changes are unexpected or in line with the time trends observed for traditional migrants.

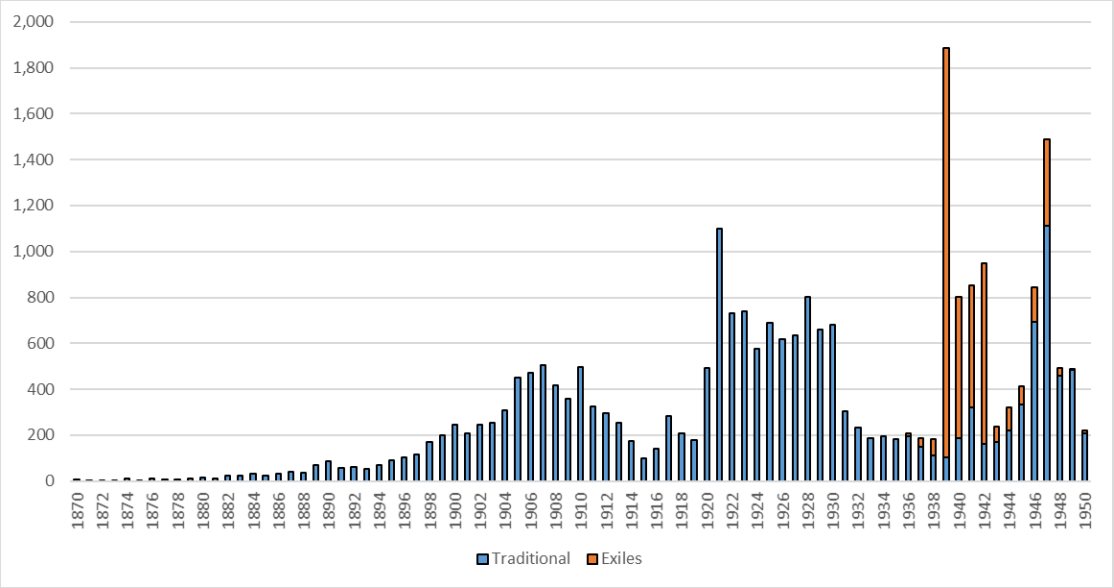
Comparing exiles with traditional migrants.

To evaluate the loss of human capital consequence of the exile, we must put this loss into a broader context. To better understand the impact of the exile, we will compare it with the migrations that took place before, during and after the arrival of the republican refugees. This perspective will enrich the interpretation of the results providing a comparative analysis. Where refugees more skilled than the traditional immigrants? If so, by how much? What about those who moved to Mexico at the same time and in later periods but did not register themselves as political refugees? The traditional immigrant and the republican exile represented a different type of migration and therefore had very distinctive features.

In the age of mass migration Mexico was not a preferred destination for Spanish emigrants in contrast with Argentina, Brazil, Uruguay, and Cuba. The peak of arrivals before 1939 happened during the 1920s. (Figure 2). As in the rest of the Americas, traditional Spanish immigration to Mexico had virtually stopped after 1930 when the number of Spaniards entering the country declined

substantially. The arrival of immigrants maintained a low level until the first waves of the republican exiles produced a significant increase in the number of Spanish expatriates entering Mexico. The first exiles arrived right after the beginning of the civil war in 1936, followed by still small but increasing numbers in 1937 and 1938. It would be in 1939 when the highest number of exiles, both in absolute and relative terms, arrived in Mexico. After the end of the war, Mexico received three major expeditions carried out by the ships Mexique, Sinaia and Ipanema that transported a total of 4,660 expatriates (Pla Brugat, 2000:161). Exiles continued to arrive in significant numbers during the three following years to decline considerably in 1943. It would not be again until 1947 when another wave of exiles in a much smaller scale would again enter Mexico. In relative terms and compared to the traditional migration, exiles represented the lion share of total Spanish immigrants between 1939 and 1942. In 1944 conventional immigrants would resume their arrival to Mexico, returning to a traditional migration pattern that is supported by other authors (Lida and Pacheco Zamudio, 1994).

Figure 2. Spanish traditional and exile migration to Mexico, 1870-1950



Sources: Computed with data from the Registro Nacional de Extranjeros

The economic immigrant in Mexico was quite different than the Spanish immigrant in Argentina, Uruguay, or Cuba. Lida and Pacheco Zamudio (1994) defined them as a "privileged migration" because of their success as traders, entrepreneurs, and professionals. The average traditional immigrant was named José, a Roman Catholic who only spoke Spanish, was 168 cm tall, and lived in the province of Asturias. Around his 39th birthday Jose decided to take a ship from Spain to the port of Veracruz in Mexico. From there he moved to the interior of the country to Mexico DF where he lived and worked as a trader. Maria was the female counterpart to José and like him she was a

Catholic who did not speak any foreign language, measured 159 centimeters, and lived in Asturias. Also around 39 years old, she took a ship from Spain to Veracruz and then the road to the Mexican capital where she became a housewife.[8]

The average republican exile was a little bit different. His name was also José and he was also a Catholic, although he lived in Barcelona where he worked in trade related activities, spoke French, and measured 169 centimeters. At the age of 38 he was forced to leave and probably after passing through another country he arrived by ship to the port of Veracruz, moving later to Mexico DF. Maria was José's wife and therefore lived with him in Barcelona before they had to leave the country. She was three years younger than her husband, a Roman Catholic, only spoke Spanish and measured 159 centimeters. After the end of the Civil War, she followed her husband to Mexico where they lived in the capital and she continued working as a housewife.

Extracted from over 26,000 individual records, the profiles presented above represent the different types of migrations and show some of the most important differences. The first one is obvious; the traditional immigrant left his country freely while the exile was forced to do it. The second one is the difference in the levels of human capital; on average almost half of the exiles spoke at least one foreign language while 7.5 per cent of them spoke two and 2.2 per cent spoke three or more.[9] On the side of the traditional immigrants the numbers were considerably lower with around 11 per cent speaking a foreign language, although not that disappointing considering that illiteracy rates in Spain were around 32 per cent in 1930 and 23 per cent in 1940 (Pla Brugat, 2000:171).

Table 1 presents the differences between traditional migrants and exiles in several dimensions that define the profile of the migrants. In the case of traditional migrants, we included two columns, the first one using the information for all the period and the second with the sample restricted to the same entry years as the republican exiles. The most significant difference between both samples of traditional migrants is the higher HISCAM and foreign languages spoken by those who entered Mexico between 1936 and 1950.[10] Traditional migrants in the later years were also younger when they migrated and had a higher share in the primary and secondary sectors than their predecessors. The share of men was considerably lower and the share of minors higher. Exiles were more similar to the traditional migrants who moved with them, although there were also differences between

[8] These results coincide with the estimated by Lida and Pacheco Zamudio (1994) in a study of the emigrations to Mexico before the Spanish civil war. For a detailed state of the question see Lida (2006)
[9] Computed with data from the Registro Nacional de Extranjeros.
[10] Between 1930 and 1948, a period of generally low emigration from Spain to Latin America, the relative importance of the emigration of professionals increased, to the detriment of rural and even industrial emigration (Yañez, 1994: 183-202).

both groups. The number of foreign languages spoken by the exiles was much higher than by traditional migrants, as it was the share of occupations in the secondary sector. The share of exiles who declared themselves as Catholics was also much lower than the level of traditional migrants in any of the two samples.

Table 1. Descriptive statistics of indicators, traditional migrants vs exiles.

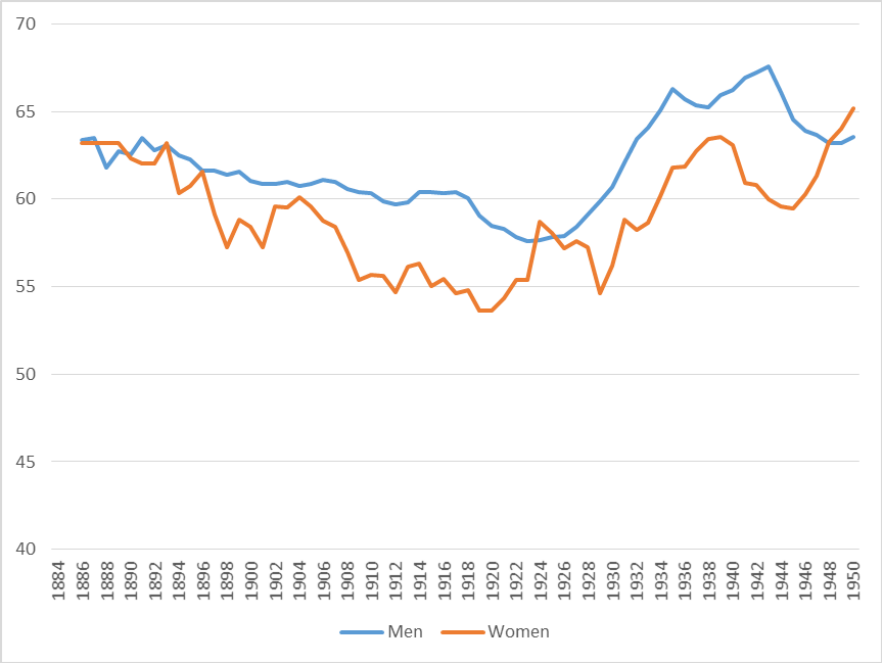
	Traditional migrants		
Indicator	All	1936-50	Exiles
HISCAM	60.5	64.2	64.9
Foreign languages	0.15	0.29	0.55
Height	165.7	165.5	164.8
HISCLASS	2.2	2.3	2.5
Age	38.8	36.8	36.7
Primary sector	8.3	13.6	9.7
Secondary sector	7.6	12.6	19.4
Tertiary sector	84.1	73.8	70.9
Share men	0.74	0.57	0.58
Share minors	3.13	7.2	5.1
Share Catholics	96.1	96.2	63.6

Source: Computed with data from the Registro Nacional de Extranjeros

Figure 3 presents the evolution of the average HISCAM of all the migrants including the republican exile between 1886 and 1950. The trends show a steady decline of its value between 1886 and the early 1920s that was followed by an intense recovery until 1935, remaining at high levels until 1943 when the average HISCAM decreased but still remained at high historical levels. Long term trends were very similar for both genders with average female HISCAM scores being in general lower.

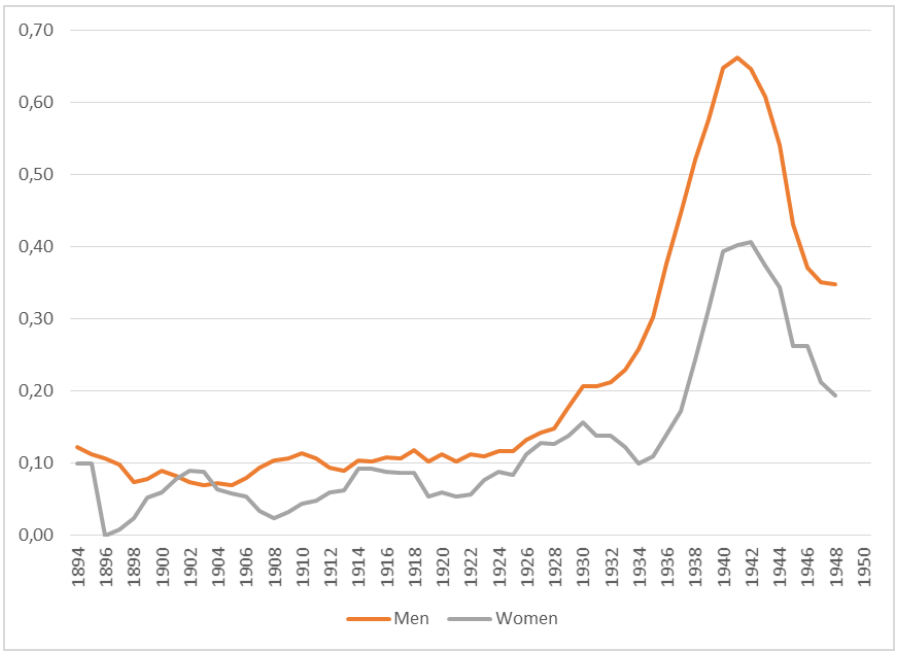
A quick look to the average number of foreign languages spoken by all migrants shows a relative stability between 1886 and the early 1920s, when as in the case of HISCAM the series experienced an increase that was very intense from 1936 coinciding with the arrival of the first republican exiles (Figure 4). The growth peaked by 1942 and was reversed very quickly coinciding with a reduction in the numbers of exiles. It remained high in the late 1940s, although with values that were similar to the ones expected if the 1922-34 period that represents the traditional migrants' trend is extrapolated. As in the case of HISCAM, long term trends were very similar in both genders that also showed a very high correlation in short term changes.

Figure 3. Average HISCAM of migrants 1886-1950 (5 years moving average)



Source: Computed with data from the Registro Nacional de Extranjeros

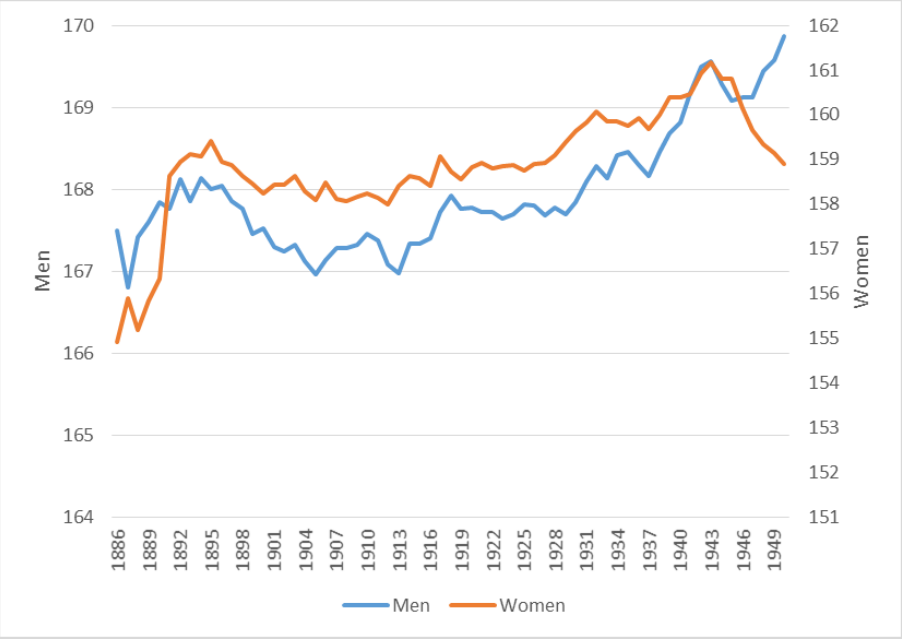
Figure 4. Foreign languages per migrant 1886-1950 (5 years moving average)



Source: Computed with data from the Registro Nacional de Extranjeros

The evolution of average heights also shows a general improvement in the long term, although short term changes and minimum and maximum levels were different to those presented by HISCAM and languages (Figure 5). The lowest values are found at the beginning of the period in the 1880s and the maximum levels in the 1940s. Short term changes show a deterioration between the final years of the nineteenth century and the early 1910s to later experience a steady increase that continued until the end of the period for males and until the early 1940s for women. In the case of heights, the arrival of the fist exiles in 1936 does not coincide with an increase in average heights that continued to rise after 1942 when their numbers dwindled.

Figure 5. Average migrant height, 1886-1950 (5 years moving average)



Source: Computed with data from the Registro Nacional de Extranjeros

Therefore, a descriptive analysis of the data suggests that the republican exiles shared some similarities with traditional migrants, especially with those who moved at the same years as they did, although there were also some stark differences between both groups. The following section tries to exploit this variance to identify better the potential different profile of the exiles using traditional migrants as control group.

Econometric analysis

In order to isolate better the effect of the exile, we carried out an econometric analysis comparing at individual level the potential determinants of the differences in human capital between refugees and the traditional migrants, using OLS pooled regressions with the following specifications:

$$Human\ Capital_i = \propto\ + \beta_1\ Exile_i + D_i + P_i + \ \varepsilon_i \quad (1)$$

$$Human\ Capital_i = \propto\ + \beta_1\ Exile_i + \beta_2 Male_i + \ D_i + P_i + \ \varepsilon_i \quad (2)$$

$$Human\ Capital_i = \propto\ + \beta_1\ Exile_i + \beta_2 Male_i + \beta_2 HISCLASS_i + \ D_i + P_i + \ \varepsilon_i \quad (3)$$

Where $Human\ Capital_i$ represents each one of the three proxies (HISCAM, foreign languages and height) for individual i and *Exile* represents a dummy variable that takes value 1 if the migrant declares being an exile from the Spanish Civil War. The existence of a gender gap in the three human capital dimensions, especially in the case of heights where genetic differences are clear, implies that we should also control for gender with the variable *Male,* a dummy variable that takes value 1 if the individual is male. We should also consider that the average values of the three proxies of human capital could present changes over a period of time as long as the one considered in this paper, and for that reason the factor variable *D* was introduced in the models to control for the decade of birth of the migrant. In a similar way and as explained above, there could be significant regional differences in the average levels of human capital considered in our three dimensions, so to account for changes in the geographical origin of the migrants over time we introduced the factor variable *P* to control for the province of birth of the individual. Finally, we include *HISCLASS* as factor variable with five possible values ranging from 1 (Elites) to 5 (Unskilled workers and farm workers) as described above. We expect that this variable will be highly correlated with our three dimensions of human capital, and with its inclusion we try to find significant differences between exiles and traditional migrants who belong to the same social class. In other words, we try to estimate if exiles were not just on the top in terms of human capital within the whole sample, but also within their respective social classes.

Tables 2 to 4 present the four specifications for the three dimensions of human capital; HISCAM, foreign languages, and heights. In the case of HISCAM, our estimates show that once gender, decade, and province of birth are controlled, individuals who declare themselves as exiled have a HISCAM value 4 points higher than the traditional migrant. When social class is introduced as control, the value of the exile dummy is reduced as expected, but we still find a significant impact meaning that

even within the same social class, exiles enjoyed a 1.2 points premium in their HISCAM value compared to traditional migrants. Males present a higher HISCAM than women that although reduced, also exists once social classes are introduced as controls. The effect of social class is also the expected, where using the Elites as baseline we can observe a clear gradient with reducing HISCAM scores as we move from class 2 to class 5.

Table 2. Correlates of HISCAM

Dep. variable: HISCAM	Model I	Model II	Model II
Exiled	3.6***	4.0***	1.2***
	(0.33)	(0.34)	(0.20)
Male		3.4****	0.8****
		(0.43)	(0.25)
HISCLASS			
(Class 1 – Elite Baseline)			
Class 2 – Lower middle class			-28.3***
			(0.26)
Class 3 – Self-employed farmers and fishermen			-36.3***
			(0.25)
Class 4 – Skilled workers			-33.7***
			(0.28)
Class 5 – Unskilled workers and farm workers			-42.1***
			(0.35)
Decade of birth control	Yes	Yes	Yes
Province of origin control	Yes	Yes	Yes
Constant	61.0	57.6	85.1
Obs.	16,630	16,630	16,630
R2	0.05	0.06	0.62
F-test	0.00	0.00	0.00

Notes: *,** and *** denote significance at 10, 5 and 1 per cent levels, respectively. Robust standard errors in parentheses.

Table 3 presents the same three models using foreign languages as human capital proxy. The results are similar to HISCAM and the exile dummy presents values that are very stable in all the specifications. On average, exiles speak around 0.3 more foreign languages per head than traditional migrants, a value that increased once social classes are introduced as controls. Women suffer a penalty that is also maintained when social classes are considered, where as expected there is a clear gradient from the top to the bottom social class.

Table 3. Correlates of Languages

Dep. variable: Languages	Model I	Model I	Model III
Exiled	0.29***	0.30***	0.33***
	(0.01)	(0.01)	(0.02)
Male		0.13***	0.07***
		(0.007)	(0.02)
HISCLASS			
(Class 1 – Elite Baseline)			
Class 2 – Lower middle class			-0.32***
			(0.02)
Class 3 – Self-employed farmers and fishermen			-0.46***
			(0.02)
Class 4 – Skilled workers			-0.43***
			(0.02)
Class 5 – Unskilled workers and farm workers			--0.42***
			(0.03)
Decade of birth control	Yes	Yes	Yes
Province of origin control	Yes	Yes	Yes
Constant	0.33	0.33	1.17
Obs.	21,727	21,727	15,902
R2	0.13	0.15	0.20
F-test	0.00	0.00	0.00

Notes: *,** and *** denote significance at 10, 5 and 1 per cent levels, respectively. Robust standard errors in parentheses.

Finally, the analysis using heights presented in Table 4 shows very different results. Without gender controls exiled were in fact 0.7 centimeters shorter than traditional migrants, a shortfall that disappears once gender is introduced. These results are explained for the share of women in the exile group, higher than in the sample of traditional migrants and the genetic gender gap in statures between men and women that Models II-III show, with males being between 9 and 10 centimeters taller than women. Contrary to the case of HISCAM, exiles do not seem to enjoy higher statures than traditional migrants in any of the specifications. We also observe that individuals belonging to class 1 were the taller, although the gradient as we move to the lowest social class (class 5) is not as clear as in the case of HISCAM.

Table 4. Correlates of Heights

Dep. variable: Height (cm)	Model I	Model II	Model III
Exiled	-0.7***	0.04	0.08
	(0.15)	(0.16)	(0.16)
Male		8.9***	10.0***
		(0.10)	(0.22)
HISCLASS			
(Class 1 – Elite Baseline)			
Class 2 – Lower middle class			-1.4***
			(0.18)
Class 3 – Self-employed farmers			-1.4***
and fishermen			(0.23)
Class 4 – Skilled workers			-1.7***
			(0.22)
Class 5 – Unskilled workers			-1.3***
and farm workers			(0.46)
Decade of birth control	Yes	Yes	Yes
Province of origin control	Yes	Yes	Yes
Constant	162.2	155.3	158.0
Obs.	20,505	20,505	15,236
R2	0.03	0.30	0.15
F-test	0.00	0.00	0.00

Notes: *,** and *** denote significance at 10, 5 and 1 per cent levels, respectively. Robust standard errors in parentheses.

Discussion

Our results show that when using HISCAM and foreign languages as proxies of human capital, both series experienced maximum historical levels that coincide with the arrival of the republican exile to Mexico. There are, however, also important differences between both series. While in the case of HISCAM the increase started in the early 1920s well before the arrival of exiles, in the case of foreign languages there is a clear correlation between an exponential growth and the arrival of the first batch of political refugees. Heights on the other hand present a very different trend to the other two proxies and show a deterioration from the late nineteenth to the early twentieth century to recover later, with no significant changes during the arrival of the exiles.

The econometric analysis of the three proxies for human capital support the descriptive analysis presented above. The first main conclusion combining both approaches is that exile status does not seem to correlate with taller heights. There are several reasons that could explain this result making it compatible with those obtained for the other two dimensions of human capital. The first one is that as explained above, heights are expected to be correlated with human capital, but they are a more tangential proxy than more direct estimates like HISCAM or foreign languages. A second

possibility also congruent with the first one, is that achieving high statures require a lower investment than obtaining a good occupation or learning a foreign language. In other words, an average family could afford investing in decent nutrition and low workload for its children as to guarantee a good stature, but not having the resources to invest in the education required to achieve a top occupation or learn a foreign language. The fact that the significance of the exile dummy for HISCAM and foreign languages are maintained once social classes are considered suggests that this could be the case, and that in these two cases the exile dummy is significant because exiles were also part of the top of their respective social classes with more room to invest in education.

Traditional migrants were in fact very positively selected as Lida and Pacheco Zamudio (1994) explain, and they were considerably taller than the average Spaniard who did not migrate. A recent study by Cámara et al. (2019) estimate that the average height of the Spanish conscript ranged between 162 and 165 centimetres for the cohorts born in 1840 and 1920 respectively, while the for the same cohorts, Spanish migrants to Mexico reached 166 and 169 centimetres. The comparison with the heights of the elites in Brazil and Colombia reinforce the high statures of Spanish migrants to Mexico. Males reached similar heights to their Colombian and Brazilian counterparts in the elites in the early twentieth century (around 168 centimetres). Female Spanish migrants in Mexico were on average one centimetre taller than women belonging to the elites in Colombia, around 159 versus 158 centimetres respectively (Meisel and Vega, 2007; Franken, 2019).

The results for HISCAM and languages (Tables 2 and 3) show that exiles presented higher values for both proxies when they were compared to traditional migrants. In the case of HISCAM exiles achieved an average HISCAM around 4 points higher than the scores achieved by traditional emigrants that coincided with them in time, who averaged a HISCAM of 66.[11] In the case of languages the difference between both groups was more substantial, with exiles speaking around 0.3 more languages per head than the traditional migrants who moved to Mexico at the same time who averaged 0.34 languages per head. But, why was the connection between exiles status and foreign languages much stronger than with HISCAM? A possible answer could be that many of the exiles who declared speaking French learnt it not through the kind of formal education that we are trying to estimate, but from their long stays in French soil before they sailed to Mexico. As we explained above, large numbers of exiles left Spain right after the beginning of the civil war and moved to southern France where many of them remained during the war hoping to return after its end. When the war finished and the republicans lost, many of them moved from France to Mexico becoming part of our sample.

[11] Table A1 in the appendix shows examples of occupations with HISCAM around 66 compared to those with HISCAM 4 points higher.

It would not be surprising to find cases of exiles who had to learn French during their stay in France and declared speaking it when they entered Mexico. Although this possibility is simple speculation, we carried out several robustness checks of our results that are presented in Table 5 that repeats the most complete model with four new specifications. Model V excludes from the sample to all individuals who only declared speaking French. In this model we penalize both traditional migrants who had learnt French but also all exiles who learnt it in Spain, or in other words we measure the ability of individuals to speak other languages different to French equally affecting exiles and traditional migrants. Given that exiles seemed to obtain better occupations (HISCAM) than traditional migrants and that French was the main foreign language taught in Spain at the time, we believe that on average this specification penalizes exiles more than traditional migrants. Model VI excludes from the sample all exiles who arrived from Catalonia or Aragon. The reason is that the bulk of the exiles who escaped to France, remained there, and potentially travelled later to Mexico proceeded from these two regions that share border with France. Model VII excludes all the exiles who arrived from the ships that the republican government in exile hired to transport part of the the refugees who were living in France. [12] Finally, model VIII is the most restrictive and directly excludes all exiles who declared being able to speak only French. We believe that this is clearly a lower bound, since we are excluding from the sample a large number of exiles no matter where they learnt French that was also the most common language spoken in all the sample. The results in all the models are consistent with those obtained in the previous models, suggesting that the exile dummy in foreign languages does not seem to be consequence of their stay in France. The values of the coefficients for Models V and VIII are as expected lower. In the case of model V, excluding all migrants who only spoke French reduced the average number of languages spoken by traditional migrants who moved at the same time as the exiles to 0.26, compared to 0.34 if French they were included. Therefore, the reduction in the coefficient is also related to the reduction in the average number of total languages spoken consequence of excluding a large number of individuals who only spoke French.

[12] Those ships were Flandre, Guinea, Ipanema, Manuel Arnus, Mexique, Nyassa, Orinoco, Santo Domingo, Siboney and Sinai.

Table 5. Correlates of languages adjusting for exiles in France

Dep. variable: Languages	Model V	Model VI	Model VII	Model VIII
Exiled	0.17***	0.28***	0.33***	0.16***
	(0.02)	(0.02)	(0.02)	(0.02)
Male	0.12**	0.06***	0.12***	0.1***
	(0.02)	(0.02)	(0.02)	(0.02)
HISCLASS				
(Class 1 – Elite Baseline)				
Class 2 – Lower middle	-0.60***	-0.50***	-0.49***	-0.34***
class	(0.04)	(0.03)	(0.03)	(0.02)
Class 3 – Self-employed	-0.63***	-0.53***	-0.52***	-0.45***
farmers and fishermen	(0.04)	(0.03)	(0.03)	(0.033
Class 4 – Skilled workers	-0.64***	-0.52***	-0.52***	-0.45***
	(0.05)	(0.04)	(0.04)	(0.03)
Class 5 – Unskilled	--0.56***	-0.47***	-0.47***	-0.43***
workers and farm workers	(0.05)	(0.04)	(0.04)	(0.03)
Decade of birth control	Yes	Yes	Yes	Yes
Province of origin control	Yes	Yes	Yes	Yes
Constant	1.29	1.29	1.22	1.17
Obs.	14,447	15,204	14,896	14,967
R2	0.15	0.29	0.21	0.13
F-test	0.00	0.00	0.00	0.00

Notes: *,** and *** denote significance at 10, 5 and 1 per cent levels, respectively. Robust standard errors in parentheses.

The analysis of the exile from a female perspective has often been forgotten, although we count on qualitative research that analyzes the situation of the female republicans in the exile (Martinez, 2007). With our data we carry out a quantitative analysis of the human capital of Spanish women in the exile. As mentioned before, one of the common problems in the use of female occupational categories is the frequency with which they are classified as housewives, without being able to draw conclusions about their real qualification. In other cases, occupations such as seamstresses, common for immigrant women, may be temporary jobs held by the exiled women during their early years in Mexico, and may not correspond to their pre-exile occupation. The number of languages spoken other than Spanish allows us to overcome these obstacles in assessing women's human capital. Our results show that the weight of women in the loss of human capital was significant; according to our estimations more than one third of all the foreign languages spoken by the exiles were spoken by women, suggesting that a considerable share of the human capital lost came from female exiles. In terms of population women represented 42 per cent of the republican exiles to Mexico. The difference between both numbers reflects the lower levels of human capital that on average existed between males and females, that even reaching lower human capital levels than men, represented a substantial percentage of the brain drain. The case of the Mexican exile highlights the importance of

women, a group that is usually forgotten in quantification exercises given the lack of comparable sources. Figures 3-5 reveal that this issue is very relevant, because we observe very similar trends in the evolution of male and female migrant's profiles over time. The synchronicity of the long term waves that we observe in the three human capital proxies for both genders provides new and key evidence to the study of the effects of brain drain in the age of mass migrations, usually focused on men for the limitations imposed by historical sources.

Conclusions

The study of the Spanish civil war and its consequences has generated intense and controversial academic debates, like the role of the republican exiles and the loss of human capital that they represented. Refugees are assumed to be not economically selected to the same degree as economic migrants as push factors are stronger than economic pull factors. The Spanish exile in Mexico after the Civil War is a good case of study since it is frequently presented as a highly selected flow that arrived to Mexico with skills above the average of the Mexican population. The literature argues that the importance of the Spanish exile does not rely exclusively on the number of people who left the country, but on their quality. The traditional view presents the exile as a loss of human capital and a brain drain for Spain. Taking the Mexican exile as case study, this paper attempts to quantify this loss, and to put into context the quality of the human capital that left Spain after the war. Our quantification exercise allows us to go beyond the traditional view of Spanish exile focused almost exclusively on intellectuals, writers, and highly qualified professionals. Spanish refugees were, overall, an immigration with high human capital compared to the traditional economic immigrant.

We created a profile of the immigrant in Mexico before 1936 and a profile of the republican exile to compare traditional economic immigrants with refugees. To quantify human capital of the two groups, we use three different indicators: HISCAM for occupations, the number of foreign languages different to Spanish that immigrants could speak, and their stature. Our data allow us to create an index of human capital using the average number of foreign languages spoken, that we believe captures the highest level of human capital for Spanish migrants during the period considered. Our results show that when using HISCAM and foreign languages as proxies of human capital, exiles presented higher values for both variables when they are compared to traditional migrants. However, exile status does not seem to correlate with taller heights, though traditional immigrants in Mexico were considerably taller than the average Spaniard who did not migrate.

If we assume that languages were the highest qualification, followed by HISCAM, the fact that the effect of exile is highest in languages suggests that Spanish exiles were indeed highly qualified. Our data show that on average almost half of the exiles spoke at least one foreign language while among

the traditional immigrants only around 11 per cent did the same. The high selectivity of the exiles is also reflected in the significance of the exile dummy when social class controls were introduced in our models, suggesting that exiles were among the most skilled members of each one of these classes.

The gender approach is an important contribution of this paper, because the proxies we use allow us to measure human capital for women much better than using occupations. Therefore, we can quantify the qualification of women, a variable that is usually omitted from economic history given the lack of recorded data. The role of women in the Mexican exile did not consist solely on their numbers, but also on their importance in terms of human capital. Depending on the proxy used, around one quarter of the human capital lost with the Mexican expatriates came from females. An important lesson of this result highlights the importance of quantifying the relevance of a group that is usually invisible in economic history.

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Appendix

Table A1. Examples of occupations with HISCAM scores around 66 and 70.

Occupations with HISCAM around 66
45190 Other Salesmen, Shop Assistants and Demonstrators
41025 Working Proprietor (Wholesale or Retail Trade)
22200 Transport and Communications Supervisors
16000 Sculptor, Painter, Photographer or Related Creative Artist, Specialisation Unknown
16150 Engraver and Etcher (Artistic)
16310 Photographer, General
39320 Correspondence Clerk
45120 Wholesale Trade Salesperson
Occupations with HISCAM around 70
39350 Insurance Clerk
39520 Library Clerk
44220 Business Services Salesman (except Advertising)
17120 Composer
13990 Other Teachers
21240 Contractor
2255 Hydraulics Engineer
22680 Supervisor and General Foreman (Production and Distribution of Electricity, Gas and Water)
42220 Buyer

Figure A1. Example of card.

Source: PARES (http://pares.culturaydeporte.gob.es/inicio.html)